

Applicant respectfully disagrees with the basis for the rejection and requests reconsideration and further examination of the claims.

The present invention is directed to a radio-frequency identification interrogator and related system and method for use with a passive radio-frequency identification (RFID) tag that utilizes a frequency-hopping source configured to sequentially generate radio frequency signals at pseudo-randomly selected frequencies coupled to a transmitter and a heterodyne receiver coupled to an antenna circuit to receive reflected radio-frequency signals from the RFID tag. A signal processor is coupled to the antenna circuit and to the heterodyne receiver as described in the specification at page 5, lines 22-29, a phase shifter is used to shift a generated signal by 90° to provide a second signal on a second branch of the device that is delayed. This enables reading of the reflected signal during quadrature nulls, "which commonly occurs with continuous-wave backscatter RFID systems."

As the Examiner acknowledges, Mays et al. fails to teach the combination of a frequency-hopping source and a heterodyne receiver. The Examiner cites Wu et al. as teaching the use of a heterodyne receiver. However, Wu et al. in fact teaches just the opposite. In the background portion of the Wu et al. patent, the portion cited by the Examiner, Wu teaches that a homodyne receiver is "unlike a heterodyne system" in that the homodyne receiver uses two mixers that creates the undesired effect of notches or "frequency nulls" (see col. 1, lines 47-57), which makes the RFID system vulnerable to environmental changes that can drastically degrade its performance. Moreover, Wu et al. teaches an IQ combiner for use with a homodyne receiver that combines the I and Q outputs of a quadrature demodulator so that it "will not have the nulls" (see col. 4, lines 31-37). Clearly, the purpose of Wu et al. is to eliminate the notches or frequency nulls in the output subcarrier signal in a homodyne receiver having two outputs (see Abstract, lines 1-2). Nowhere is there any teaching or suggestion in Wu et al. of using a heterodyne receiver circuit in an RFID system where quadrature nulls are used in reading a reflected signal. ✓

Even, if one were motivated to make the combination suggested by the Examiner, the result would be an RFID system utilizing a homodyne receiver having two outputs to demodulate the modulated backscatter signal using an IQ combiner that introduces a 90° phase shift onto one of the demodulator outputs and then combines the outputs of the demodulator to

eliminate frequency nulls. Nowhere is there any teaching or suggestion in the combination of these references to use a heterodyne receiver.

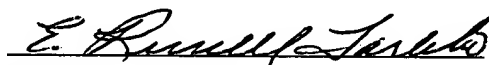
In view of the foregoing, applicant respectfully submits that claims 1-24 are clearly allowable over the references cited and applied by the Examiner. In event the Examiner finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact applicant's undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

The Commissioner is authorized to charge any additional fees due by way of this Response, or credit any overpayment to our Deposit Account No. 19-1090.

Respectfully submitted,

Curtis Lee Carrender

SEED Intellectual Property Law Group PLLC



E. Russell Tarleton

Registration No. 31,800

ERT:aep

Enclosure:

Postcard

701 Fifth Avenue, Suite 6300
Seattle, Washington 98104-7092
Phone: (206) 622-4900
Fax: (206) 682-6031

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